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| Exploring the Extreme | | | |
| 2009 Mathematics | | | |
| Standards of Learning | | | |
| Virginia Mathematics | | | |
| Grade K | | | |
| Activity/Lesson | State | Standards | |
| Finding the Center of Gravity Using Rulers | VA | MA.K.K.8 | The student will identify the instruments used to measure length (ruler), weight (scale), time (clock: digital and analog; calendar: day, month, and season), and temperature (thermometer). |
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| Exploring the Extreme | | | |
| 2009 Mathematics | | | |
| Standards of Learning | | | |
| Virginia Mathematics | | | |
| Grade 1 | | | |
| Activity/Lesson | State | Standards | |
| Finding the Center of Gravity Using Rulers | VA | MA.1.1.9 | The student will use nonstandard units to measure length, weight/mass, and volume. |
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| Exploring the Extreme | | | |
| 2009 Mathematics | | | |
| Standards of Learning | | | |
| Virginia Mathematics | | | |
| Grade 2 | | | |
| Activity/Lesson | State | Standards | |
| Finding the Center of Gravity Using Rulers | VA | MA.2.2.11.a | The student will estimate and measure length to the nearest centimeter and inch; |
| Finding the Center of Gravity Using Rulers | VA | MA.2.2.11.b | The student will estimate and measure weight/mass of objects in pounds/ounces and kilograms/grams, using a scale; and |
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| Exploring the Extreme | | | |
| 2009 Mathematics | | | |
| Standards of Learning | | | |
| Virginia Mathematics | | | |
| Grade 3 | | | |
| Activity/Lesson | State | Standards | |
| Finding the Center of Gravity Using Rulers | VA | MA.3.3.9.a | The student will estimate and use U.S. Customary and metric units to measure length to the nearest 1/2-inch, inch, foot, yard, centimeter, and meter; |
| Finding the Center of Gravity Using Rulers | VA | MA.3.3.9.c | The student will estimate and use U.S. Customary and metric units to measure weight/mass in ounces, pounds, grams, and kilograms; and |
| Finding the Center of Gravity Using Rulers | VA | MA.3.3.17.a | The student will collect and organize data, using observations, measurements, surveys, or experiments; |

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| Finding the Center of Gravity Using Plumb Lines | VA | MA.3.3.9.a | The student will estimate and use U.S. Customary and metric units to measure length to the nearest 1/2-inch, inch, foot, yard, centimeter, and meter; |
| Finding the Center of Gravity Using Plumb Lines | VA | MA.3.3.9.c | The student will estimate and use U.S. Customary and metric units to measure weight/mass in ounces, pounds, grams, and kilograms; and |
| Finding the Center of Gravity Using Plumb Lines | VA | MA.3.3.19 | The student will recognize and describe a variety of patterns formed using numbers, tables, and pictures, and extend the patterns, using the same or different forms. |
| Changing the Center of Gravity Using Moment Arms | VA | MA.3.3.9.a | The student will estimate and use U.S. Customary and metric units to measure length to the nearest 1/2-inch, inch, foot, yard, centimeter, and meter; |
| Changing the Center of Gravity Using Moment Arms | VA | MA.3.3.9.c | The student will estimate and use U.S. Customary and metric units to measure weight/mass in ounces, pounds, grams, and kilograms; and |
| Changing the Center of Gravity Using Moment Arms | VA | MA.3.3.17.a | The student will collect and organize data, using observations, measurements, surveys, or experiments; |
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| 2009 Mathematics | | | |
| Standards of Learning | | | |
| Virginia Mathematics | | | |
| Grade 4 | | | |
| Activity/Lesson | State | Standards | |
| Finding the Center of Gravity Using Rulers | VA | MA.4.4.6.a | The students will estimate and measure weight/mass and describe the results in U.S. Customary and metric units as appropriate; and |
| Finding the Center of Gravity Using Rulers | VA | MA.4.4.7.a | The student will estimate and measure length, and describe the result in both metric and U.S. Customary units; and |
| Finding the Center of Gravity Using Plumb Lines | VA | MA.4.4.6.a | The student will estimate and measure weight/mass and describe the results in U.S. Customary and metric units as appropriate; and |
| Finding the Center of Gravity Using Plumb Lines | VA | MA.4.4.7.a | The student will estimate and measure length, and describe the result in both metric and U.S. Customary units; and |
| Changing the Center of Gravity Using Moment Arms | VA | MA.4.4.6.a | The student will estimate and measure weight/mass and describe the results in U.S. Customary and metric units as appropriate; and |
| Changing the Center of Gravity Using Moment Arms | VA | MA.4.4.7.a | The student will estimate and measure length, and describe the result in both metric and U.S. Customary units; and |

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| Standards of Learning | | | |
| Virginia Mathematics | | | |
| Grade 5 | | | |
| Activity/Lesson | State | Standards | |
| Jet Propulsion | VA | MA.5.5.18.b | write an open sentence to represent a given mathematical relationship, using a variable; |
| Vectoring | VA | MA.5.5.18.a | investigate and describe the concept of variable; |
| Vectoring | VA | MA.5.5.18.b | write an open sentence to represent a given mathematical relationship, using a variable; |
| Center of Gravity, Pitch, Yaw | VA | MA.5.5.8.d | estimate and then measure to solve problems, using U.S. Customary and metric units; and |
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| 2009 Mathematics | | | |
| Standards of Learning | | | |
| Virginia Mathematics | | | |
| Grade 6 | | | |
| Activity/Lesson | State | Standards | |
| Center of Gravity, Pitch, Yaw | VA | MA.6.6.2.a | The student will investigate and describe fractions, decimals, and percents as ratios; |
| Center of Gravity, Pitch, Yaw | VA | MA.6.6.2.b | The student will identify a given fraction, decimal, or percent from a representation; |
| Center of Gravity, Pitch, Yaw | VA | MA.6.6.2.c | The student will demonstrate equivalent relationships among fractions, decimals, and percents; and |
| Center of Gravity, Pitch, Yaw | VA | MA.6.6.2.d | The student will compare and order fractions, decimals, and percents. |
| Center of Gravity, Pitch, Yaw | VA | MA.6.6.9 | The student will make ballpark comparisons between measurements in the U.S. Customary System of measurement and measurements in the metric system. |
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| Standards of Learning | | | |
| Virginia Mathematics | | | |
| Grade 7 | | | |
| Activity/Lesson | State | Standards | |
| Center of Gravity, Pitch, Yaw | VA | MA.7.7.1.c | The student will compare and order fractions, decimals, percents, and numbers written in scientific notation; |
| Center of Gravity, Pitch, Yaw | VA | MA.7.7.3.b | The student will add, subtract, multiply, and divide integers. |
| Fuel Efficiency | VA | MA.7.7.3.b | The student will add, subtract, multiply, and divide integers. |

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| Fuel Efficiency | VA | MA.7.7.13.b | The student will evaluate algebraic expressions for given replacement values of the variables. |
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| Standards of Learning | | | |
| Virginia Mathematics | | | |
| Grade 8 | | | |
| Activity/Lesson | State | Standards | |
| Center of Gravity, Pitch, Yaw | VA | MA.8.8.1.b | The student will compare and order decimals, fractions, percents, and numbers written in scientific notation. |
| Center of Gravity, Pitch, Yaw | VA | MA.8.8.3.a | The student will solve practical problems involving rational numbers, percents, ratios, and proportions |
| Fuel Efficiency | VA | MA.8.8.3.a | The student will solve practical problems involving rational numbers, percents, ratios, and proportions |
| Fuel Efficiency | VA | MA.8.8.3.b | The student will determine the percent increase or decrease for a given situation. |
| Fuel Efficiency | VA | MA.8.8.4 | The student will apply the order of operations to evaluate algebraic expressions for given replacement values of the variables. |
| Fuel Efficiency | VA | MA.8.8.14 | The student will make connections between any two representations (tables, graphs, words, and rules) of a given relationship. |